TOURIST PERCEPTIONS OF THE ENVIRONMENTAL IMPACTS OF TOURISM IN HAWAII

by

Melissa A. Woodard

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Department of Landscape Architecture

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Approved by:

Major Professor

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CHAPTER 1
INTRODUCTION

Over the years the pursuit of travel and tourism has developed into a mass phenomenon. It involves millions of people visiting other countries and many more traveling within their own countries each year. The activities of people as they travel are as varied as the individual people themselves. However, "as traveller, explorer, or tourist, individually or collectively, man is the center of all activity, no matter how much the curiosity, the desire, or motivation for the venture" (Kaul, 1985). The movement and activities of these millions of people are the cause of environmental, social, cultural, and economic changes, which can have far reaching impacts.

Tourism is a concept that has existed for many centuries. The word tourist, however, is of comparatively recent origin. The English and Germans in the 17th and early 18th centuries came to be known as tourists while travelling on a grand tour of the continent (Kaul, 1985). Since then the terms tourism and tourist have been redefined and updated as the objectives of travellers and society have changed over the years. In 1937, the Statistical Expert Committee of the League of Nations identified classes and categories of travellers who could be designated as tourists, as well as those who could not be. These classes included travellers for pleasure and business who stayed in a given area of destination for more than twenty-four hours. According to Kaul (1985) the current definition for tourist is:

"a person who undertakes a journey for pleasure, recreation, or culture, may enter a country or visit a place for a temporary sojourn of not less than 24 hours and spends the money he brought in, without seeking or taking up work or employment in the country or the place of his visit"

Although the primary subject of tourism is man there are many other components which are important to tourism and its functioning. One of these components is the special attractions, which provide tourism with its energizing power. Attractions may be described as the on-location places that provide the things for tourists to see and do as well as offer the magnetism for travel (Gunn, 1988). Without tourist attractions there would be no tourism (Gunn, 1972). Conversely, without tourism there would be no tourist attractions. Although such statements are redundant, they point out the fundamental importance of tourist attractions and the attractiveness of places to tourism (Lew, 1987).

A tourist attraction can consist of a variety of elements whether natural or man-made. The main attractions for early Greek and Roman travellers were the delightful climate, remarkable temples, sculptures, and paintings of Athens as well as the scenic appeal of the Greek islands. In the 1800's beaches and mountains brought many travellers to pleasure destinations. These seacoasts and lakefronts allowed bathing, offered beautiful vistas, boating, socializing, and cooling relief from inland cities (Gunn, 1988). Through history the primary attraction of destination points to tourists has been the opportunity to visit and enjoy an environment that was different from that which the tourist was accustomed.

During the twentieth century there has been an explosion in the numbers and diversity of tourist attractions. However, unique natural environments, such as are found in the nation's national parks, generally have been the most popular. Throughout the last century a remarkably consistent tourist appeal has been provided even though some tourist activities have been added and styles of tourist development have changed. Some of the attractions which have provided consistent appeal include: developed beaches, mountains, scenic areas, historic sites, outdoor sports areas, resorts, amusement parks, nature centers, shopping areas, convention centers, and unusual building complexes (Gunn, 1988).

The United States offers a diversity of natural, historic, and cultural attractions to travellers and tourists from abroad and the U.S. alike. But, with rising incomes and increased leisure time in the industrialized world and the spread of transportation networks, and as the numbers and diversity of tourist attractions increase so do the numbers of tourists. Moreover, as the number of tourists increases each year so does the impact upon the tourist attractions. Kaul (1985) acknowledges that attention should be paid to the maintenance of man's environment and the conservation of natural resources, both of which are of particular attraction to tourists. He also states that it is known that mass tourism has a capacity to damage the environment, both directly and indirectly. In addition, many well-educated intellectuals attribute a large amount of responsibility for landscape change and environmental degradation to tourism (Farrell and McLellan, 1987).

There are several areas of the United States that have seen a dramatic increase in tourists as well as an increase in the impacts of tourism in recent years. Tourists flock in the millions each summer to many of the National Parks such as Yellowstone, Yosemite, and Padre Island. Although mass tourism has the capacity to damage the environment, it also has the capacity to boost local economies--a positive impact to which tourist-oriented regions have come to depend. In recent years an increase in overall environmental degradation has been seen in our National Parks along with a boost in the economies of the surrounding areas.

A popular tourist region that has also experienced this trend is the Hawaiian Island chain. The islands have the resources to attract tourists, the people to provide tourism services, and accommodations for tourists.

Hawaii is a very special part of the United States and attracts millions of people annually. It offers natural, cultural, and historic resources that cannot be found in any other part of the nation. Some of these resources include: the unique and highly diversified vegetation and landforms that have evolved on the volcanic islands; the ancient culture and society of the Polynesian Hawaiians; the historic estates and plantations established by missionaries in the mid-1800's; the warm sunny tropical weather; and miles of coastline. These resources are particularly fragile because of the limited amount of land that they

occupy and the vulnerability of tropical ecosystems to development. Hawaii's natural beauty and recreational activities are the main factors that attract tourists. Together they form Hawaii's primary economic resource. This economic feature results in a conflict of interest for both the residents of Hawaii and the tourists that visit Hawaii. The uncontrolled changes, destruction, and development associated with tourism can have a negative impact on the environment which the tourists come to enjoy. While the residents are expressing concern for the environment, they are also reaping the economic benefits, a positive impact of these changes. These impacts create a great conflict of interest between the economic benefits of tourism and the environmental impacts of tourism. The key question is which factor is more important: economic benefits or environmental protection?

The profession of landscape architecture can play an important role in developing a planning process that can evaluate these areas of conflict. As professionals, landscape architects have the expertise to develop environmentally sensitive master plans, as well as to create spaces that attract and accommodate tourists. Most tourists today are demanding high quality and well planned destinations and will bypass areas known to have environmental problems such as air, water, and noise pollution, congestion, and unattractive views. Landscape architects can make a major contribution to the evolution of sound and sensitive tourism planning. The value of their expertise needs to become integrated into the design and planning of tourism developments, so that they are developed properly, respond to market demands, and are

integrated into the total development pattern of an area. In addition, landscape architects can aid and advise tourist regions as they become increasingly intent on careful planning and controlling tourism development to help mitigate potentially undesirable socio-economic and environmental impacts and to avoid problems that are associated with unplanned and poorly designed tourism areas (Inskeep, 1988). An important key to the successful planning and design of tourism areas is the understanding of tourist's demands, how they perceive tourist developments, and what attracts them to tourism regions.

RESEARCH OBJECTIVES

The purpose of this study is to examine and evaluate tourists' perceptions of the environmental impacts of tourism developments in Hawaii. In addition to examining and evaluating tourists' perceptions the educational goals of this study are to:

1. Promote an awareness to tourists of the impacts, both positive and negative, that tourism has on the Hawaiian Islands.

2. Promote an awareness that tourists can play a role in the conservation of the natural environment in Hawaii, whether through monetary means or behavior modification.

3. Promote an understanding that environmental concerns stemming from tourism development do not lie with one individual or one entity, but with all those that are affected by tourism or benefit from tourism.

This study will survey the tourists in tourist regions on the islands of Maui and Oahu. Tourists will be approached at random and invited to participate in the survey. A survey instrument will be developed which measures tourists' environmental perceptions and attitudes. This instrument is a survey questionnaire that utilizes the Likert scale for attitude measurement and multiple choice answers.

The data collected from participants will be analyzed to determine tourists perceptions and whether or not the number of tourist visits influence how they perceive the environmental impacts of tourism. In addition, participant surveys will be analyzed to determine what

attracts tourists to the Hawaiian islands and whom they believe should be concerned about the environment.

This study will provide qualitative measures of environmental perceptions and attitudes which must be identified and analyzed in order to design and plan better tourist developments. Developing a thorough awareness of tourists' perceptions and attitudes may allow designers, planners, and environmentalists to understand how they can work together to create tourist regions that both attract tourists and conserve the fragile Hawaiian environment.

THESIS FORMAT

Chapter II describes the general aspects of tourism, tourism impacts on Hawaii, perceptions of tourism impacts, and other studies on perceptions and attitudes of tourism impacts. In addition, tourism planning and tourism development design are discussed. Chapter III presents the research methodology and procedures. Chapter IV contains a summary of the data collected and describes the methods used to analyze this information. Chapter V is an evaluation of the study and contains conclusions and recommendations for how tourists perceptions might be considered when planning and designing tourists developments, along with areas for further study and research.

CHAPTER 2
BACKGROUND

Tourism has long been noted as being responsible for modification to the environment. The environment not only includes physical surroundings but social and cultural aspects as well. The modifications that result from tourism may be either positive or negative. Whichever the case, the rapid growth of tourism has given rise to increasingly pronounced economic, environmental, and social effects (Mathieson and Wall, 1982).

GENERAL ASPECTS OF TOURISM

The destinations most preferred by tourists are those environments that exert an outstanding attraction. The location of these attractions is influenced by three important factors: ease of access from major population centers; proximity to service centers; and relationship to resource foundations. According to Gunn (1988), the most favorable locations for attractions are those within a reasonable radius of cities and accessible by the greatest number of people willing to visit. Although the location of tourist attractions is influenced by these three factors the reverse can also be said to be true. If the attraction is a part of the natural environment its location is fixed. Therefore, development often takes place to increase the tourist access to the attraction resulting in impacts upon the attraction. Rodriguez (1980) states that tourism development implies urban development on or close to the tourism attractions. In addition, developers implement development services nodes based on tourism, commerce, and industry with

little regard about changing the natural conditions. This development pattern results in dramatic changes in natural environments and increases pollution (Rodriguez, 1980).

Likewise, Kaul (1985) claims that the growth of tourism development and activities is accelerated by three factors: climate; natural and man-made resources; and accessibility. He also states that infrastructure developments, along with basic utility requirements, tourism facilities, and other tourist inputs like cultural, sport activities, entertainment, and souvenir industries all have environmental consequences. Steps need to be taken to supervise and control the establishment and operations of such developments or else saturation and exploitation of the environment will damage and upset the characteristics of the tourist attraction. In order to assure the continuance of the character and quality of the tourist attraction, it is crucial to preserve the environment and integrate tourist developments with natural and man-made landscapes (Kaul, 1985).

It is an established fact that tourism developments frequently have negative environmental impacts. They often work against other human activities and the long-range protection of natural resource assets. Great masses of uncontrolled visitors on a particular site can also cause negative environmental impacts. Large numbers of tourists can place such pressure on the natural resource base that it is caused to deteriorate. Deterioration can be caused by foot trampling, which erodes natural ground cover and exposes the surface to erosion from

rains. Beach dune areas are susceptible to severe wind erosion "blowouts" caused by the use of all terrain vehicles and excessive foot traffic. In addition, trampling increases soil compaction which can kill trees and other plants (Gunn, 1988). Impacts such as these that are attributed to large masses of uncontrolled visitors are especially detrimental to fragile environments with low carrying capacities.

The impacts of large numbers of tourists is demonstrated along the United Kingdom Heritage Coasts where coastal habitats have been affected directly and indirectly by masses of uncontrolled visitors. The masses of tourists directly erode the characteristic vegetation and as a result indirectly disturb the habitats of breeding birds. In addition, many of the coastal visitors come to participate in water sport activities requiring access to the water front. The result has been the loss of terrestrial habitats and damage to the foreshore communities. Edwards (1987) concludes that the incidence of this ecological deterioration in site quality must reflect to some degree the numbers visiting the site.

There are four tourist generated activities that place stress on the environment which are identified by Pearce (1981). These activities include: 1) permanent environmental restructuring, 2) generation of waste residuals, 3) recreational activities, and 4) effects on population dynamics. These activities will place stress upon any environment, but they can be especially detrimental to more fragile environments such as small islands, coastal zones, alpine areas, and centers of historic or cultural interest.

The first activity, permanent environmental restructuring, is a major source of environmental stress. This restructuring involves major construction activities and changes in land use, which results in changes in habitats, population of biological species, health and welfare of man, and visual quality. The replacement of the natural environment with a new built environment has a variety of far-reaching and long-lasting results in terms of the existing biological species and physical conditions of an area (Pearce, 1981).

A second impact on the environment from tourist generated activities is an increase in the generation of waste residuals. The pollution produced by the generation of waste residuals changes the quality of the environment and affects the health of biological organisms and humans (Pearce, 1981).

The most wide spread waste residual problem in resort communities is water pollution. Touristic development is actually causing pollution of air and water, with some remote resort communities pouring raw sewage directly into nearby waters (Gunn, 1988). Water bodies, which are one of the most attractive resources for tourist developments, are frequently used for cheap and convenient disposal of raw sewage which results in eutrophication of the water (Pearce, 1981). Mathieson and Wall (1982) also state that tourism also has an impact on water quality, which is affected by pollution of recreational lakes, rivers, and coastlines. They cite that some of the indirect effects on water quality from tourist activities include: 1) pathogens from raw or

inadequately treated sewage, 2) eutrophication from the addition of nutrients, 3) fluctuations in supply of oxygen in the water, and 4) oil from recreational vehicles that enters water bodies. In addition, pollutants are created in runoff and percolation waters by insecticides, herbicides, and fertilizer additives used in excess by resort and vacation home complexes (Gunn, 1988). These effects of pollution caused by tourist activities are usually seen in water bodies which are of high quality. Some cases in point include the 'collapse' of Millstatter Lake in Austria during the early 1970s after a ten fold increase in the tourist traffic in the preceding two decades and bathing restrictions on certain Mediterranean beaches (Pearce, 1981). Furthermore, the pollution that causes impacts in tourist areas is usually different in type and amount from that caused by urban and industrial waste (Mathieson and Wall, 1982). In order to protect the environment there needs to be careful monitoring and regulation of waste residuals created by tourists.

Another waste residual that is increased by tourism is air pollution. Air pollution worsens as emissions rise from an increase in automobile and air traffic (Pearce, 1981). Tourists increase the volume of traffic in the environment. The increase in automobile and air traffic alone is enough to impact the air quality of environments. The pollutant contribution from tourist vehicles is particularly significant in resort areas set in remote and unique natural environments. This contribution has been evidenced by the adverse impacts on vegetation, which has been attributed to motorcar exhausts, in congested valleys like Yosemite

(Mathieson and Wall, 1982). Kirkpatrick and Reeser (1976) after studying air quality in Vail and Aspen found that automobile emissions were higher in mountain communities as a result of the effects of altitude and slower travelling speeds, as well as particulate emissions from the large use of open fire places for heating and social effects. It was shown that for similar populations, in terms of carbon monoxide, the air quality at Vail is about ten times as fragile as that in Denver.

The third stressful activity identified by Pearce (1981), recreation, is the best documented aspect of environmental impacts of tourism. The development of natural areas for recreation and the actual activities of the tourists directly impacts the environment. Recreationalists have caused trampling effects on soils and vegetation by various activities such as skiing, trail bike riding, and walking in a range of environments from dunes, coral reefs, forests, to meadows. The severity of the impact again is dependent on the number of visitors and the abilities of the environment to adapt. Environmental changes that are seen from these effects include changes in habitats, soil compaction and erosion, changes in plant cover and species diversity, and changes in the population of biological species (Pearce, 1981).

Finally, the fourth major effect of tourist development is its effect on population dynamics. This is especially true regarding seasonal increases in population and population densities. The population dynamics of a tourist development has an impact on the environment in several ways including congestion and demand for limited natural

resources, particularly land, water, and energy. These aspects of environmental impacts of tourism are particularly important because the tourists are attracted to the activities which depend on residential populations for services and support (Pearce, 1981).

Mathieson and Wall (1982) also recognize several areas of conflict between tourist activities and the environment. One of these areas of conflict concerns vegetation which is one of the major attractions of tourists to many destinations. However, a variety of tourist activities, particularly recreation, have an impact upon vegetation. Some of the tourist activities which affect vegetation include: 1) collection of flowers and plants, 2) careless use of fire in parks, 3) excessive dumping of garbage, and 4) pedestrian and vehicular traffic directly on vegetation. The magnitude of physical damage to vegetation caused by theses activities is related to the tourists' behavior and their attitudes towards the environment. Some of the impacts on vegetation are not immediately noticeable and are more long term. The long term effects of tourist activities on vegetation include, but are not limited to: 1) a decline in the diversity of species with continued use, 2) reduced reproduction rates, and 3) reduced plant growth as a result of soil compaction. As a major tourist attraction it is imperative that vegetation be protected from both the short-term and long-term impacts of tourism (Mathieson and Wall, 1982).

Another area recognized as being significantly impacted by tourism is wildlife. It is a known fact that tourism can directly affect wildlife.

However, these direct affects are largely dependent upon the intensity of tourism development, the resilience of species to the presence of tourists, and their adaptability (Mathieson and Wall, 1982). The most significant impact felt by wildlife is the loss of habitats. When a habitat suffers disruption animals are constantly kept on the move in search of a more secure environment (Kaul, 1985). One of the major disruptions of habitats is the development of highways and trails in areas which were traditionally feeding and breeding areas (Mathieson and Wall, 1982). Another threat to wildlife is the collection of tourist souvenirs that are produced from wildlife. Special attention should be paid to the preservation of wildlife areas and the reduction of the production of wildlife souvenirs.

These areas of conflict between tourism and the environment are just a few of the major areas that tourism impacts. In addition to the impacts mentioned, there are many other areas that tourism impacts, including man-made environments. The importance of the impacts on the environment can be determined by several factors. The major factors in determining the severity or significance of the impacts are the fragility of the environment, the uniqueness of the environment, and the number of tourists the environment is expected to support or its carrying capacity.

TOURISM IMPACTS IN HAWAII

As stated earlier, the destinations of tourists are those environments that exert an attraction. Hawaii offers such an environment that

attracts many tourists. Figures 2.1, 2.2, and 2.3 show some of environs of Hawaii that attract tourists. The islands have a warm climate, clear ocean water, uncluttered open spaces of cropland, forests, and parks, interesting cosmopolitan populations, and many recreational opportunities (Farrell, 1982).

Figure 2.1. Waterfall along the "road to Hana," Maui, Hawaii.

Figure 2.2. Open space in a remote valley, West Maui, Hawaii.

Figure 2.3. Sunset on the beach at Kaanapali, Maui, Hawaii.

There are a number of areas in the state that are considered tourism regions. The State Tourism Study (1978) designated fifteen tourism resort regions in Hawaii, outside of Waikiki (See Figure 2.4). On Oahu there are two partially developed areas and two additional areas that have been proposed as of 1982. On the Big Island(Hawaii) there is the city of Hilo and two new emerging regions. Kauai has four areas that have been designated as tourism regions. Finally, Maui County is divided into three resort areas, of which two contain numerous tourist areas on the island that have undergone considerable development (Farrell, 1982). These numerous tourism regions and their developments are aimed at accommodating the increasing number of tourists that travel to Hawaii each year. But, what kind of impact does it have on the environment?

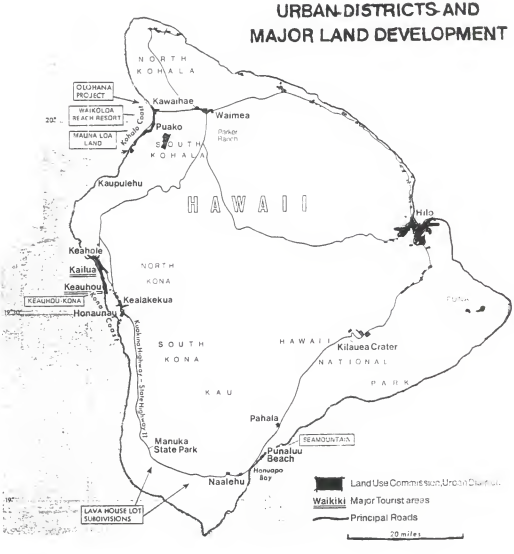

Figure 2.4a. Tourist regions on the Big Island of Hawaii. Note. From Hawaii: The legend that sells (p. 27) by Bryan H. Farrell, 1982, Honolulu: The University of Hawaii Press.

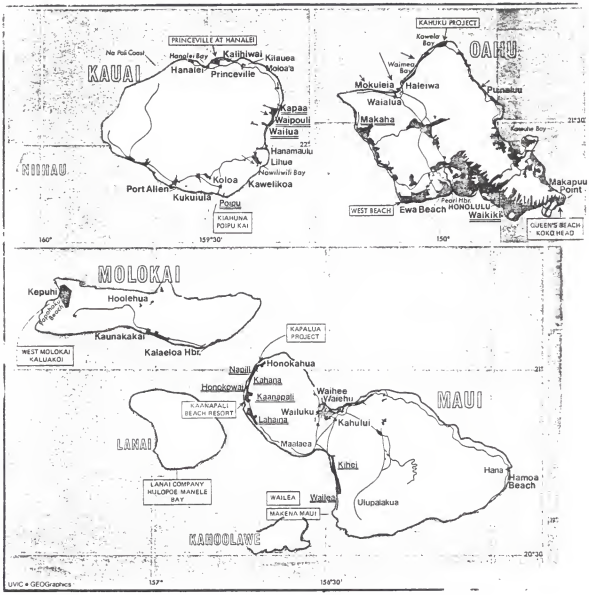

Figure 2.4b. Tourist regions in Kauai, Oahu, and Maui Counties. Note. From Hawaii: The legend that sells (p. 26) by Bryan H. Farrell, 1982, Honolulu: The University Press of Hawaii.

The number of tourists that visit Hawaii annually has increased steadily since statehood in 1959. During the 1950's fewer than 100,000

tourists traveled to Hawaii annually. By 1976, this number had increased to 3 million tourists and is currently estimated to be more than 5 million annually. As a result, the demand for tourist accommodations has followed the increasing number of tourists. These increases have resulted in two types of development in Hawaii. On Waikiki, the result is high density land use which produced high rise hotels closely spaced together (FIGURE 2.5). While elsewhere in Hawaii the development of hotels and resorts is spread out over miles of the most attractive ocean front land (FIGURE 2.6). This ocean front land was developed to attract tourists after its zoning as agricultural and conservation land was changed to urban land use by the Land Use Commission (Creighton, 1978).

Figure 2.5. Typical high density hotel development in Waikik, Oahu, Hawaii.

Figure 2.6. Typical ocean front development in Kaanapali, Maui, Hawaii.

The Land Use Commission (LUC) was created by Hawaii's Land Use Law (Act 187) in 1961 which also directed that all the land in Hawaii be divided into districts: urban, agricultural, conservation, and rural. Several factors contributed to the passage of the State Land Use Law. However, the need to preserve prime agricultural land, especially on Oahu, was the primary factor that contributed to its passage (Callies, 1984).

Gorden Lowerey (1976) found that the State Land Use Law had been successful in reclaiming land use authority for the state that had

previously been granted to the four counties. The Land Use Law was also influential in slowing the rates of conversion from agricultural to urban land uses. However, it had not prevented the conversion of 34,906 acres of agricultural land to urban land uses from 1961 to 1976. Under Hawaii's current land use plan only agriculture land which is contiguous to urban zones may be converted to urban use. This practice slows the rate of conversion and removes the problem of "buckshot" development, however conversion still occurs where there are a significant number of urban zones. The overall impact on Oahu has been to permit urban expansion where prime agricultural areas were located (Farrell, 1982).

As the zoning was changed during the 1960's and 1970's urban quality in Hawaii worsened as physical development in the towns and resort areas was increased because building design and city planning arrangements were not considered important. However, in a few places outside of Honolulu, such as Lahaina on Maui (FIGURE 2.7), the earlier charm of Hawaii has been retained through preservation efforts. While elsewhere the old has been mixed haphazardly with the new construction (Creighton, 1978). The result of this haphazard mixture of new development with traditional land uses has been the loss of land to heavy development and negative environmental impacts to the site and surrounding areas.

In 1978 Hawaii implemented the Hawaii State Plan (Act 100), which provided that the LUC could not adopt boundary amendments unless they conform to the State Plan. The State Plan list one of its principal

goals as a "desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people" (Callies, 1984).

Figure 2.7. Preserved whaling village of Lahaina, Maui, Hawaii.

Other provisions of the plan state that future urban development be directed from critical environmental areas and encourage urban growth in existing urban areas while maintaining agricultural land in agricultural designation (Farrell, 1982). The State Tourism Plan also implemented in 1978 recognizes that "open space and agricultural lands could be threatened by the trend in resort development toward large complexes with hotels, condominiums, and apartment-hotel units." However, in 1978 tourism occupied less than 1% of land space and little

agriculture land was actually used for resort development. The Tourism Plan states that population expansion uses land space but, tourism development should consider the long-term effects of committing valuable resources to tourism development or projects to promote tourism.

In 1977 the Hawaii Coastal Zone Management Act (Act 188) was enacted. This act provided for preventative management of Hawaii's shorelines and coastal waters. The CZMA developed out of concern for ecosystems and areas of critical biological importance. In addition, it developed out of consideration of prehistoric sites(to the extent of restoration), the design and placement of buildings, the preservation of open space, and the provision of adequate, accessible, and diverse recreational opportunities. The coastal zone discussions by the State Department of Planning and Economic Development infrequently mentioned tourism controls. However, it was understood that almost every clause within the CZMA could refer directly or indirectly to overall tourism activity (Farrell, 1982).

The effects on the environment from so much building for so many people have spawned a growing awareness in recent decades. There has been an increased awareness on the physical spoilage of the land, sea, and air that formed the "Hawaiian way of life." By the middle of the twentieth century ugly scars appeared on prominent hills where construction crews attempted to flatten slopes by pushing around the soil that thinly covered the lava which caused erosion and siltation to run into streams, estuaries, and bays. For the first time in Hawaiian

history low lying areas, where many people lived, began to flood. One particularly noticeable environmental impact of development in the 1950's was the dying of Kaneohe Bay off Oahu. Its coral reefs, which supported schools of particular fish, were killed by sewage and construction wastes in the waters where the coral had lived (Creighton, 1978).

Some additional environmental impacts could be seen in Waikiki and the Pearl Harbor-Pearl City area as early as the 1960's. The key to the tourist industry at the time, Waikiki, was sometimes finding dangerous bacterial-count levels on its beaches. While in the Pearl Harbor-Pearl City area automobile emissions caused something approaching the nature of smog to be seen hovering over parts of the landscape (Creighton, 1978).

These examples of the environmental impacts attributed to tourism were first noticed when Hawaii was at its "birth" as a tourist attraction. As the numbers of tourist visiting Hawaii each year have increased so have the number of impacts and their severity. However, it has still taken a while for many people to realize that development can be irreversibly destructive, even in a state such as Hawaii that is blessed with an abundance of physical assets. The need to keep places distinctive and to retain their special qualities is receiving increased sensitivity (Myers, 1976).

Myers (1976) cites several different environmental impacts caused by the effects of tourism development in Hawaii. Many of the environmental impacts stem from the resort-destination-area-concept being largely molded to fit the tourists' requirements and desires. On the outer Hawaiian Islands tourists prefer sites on remote, leeward shores. The remote, leeward shores are arid, and surrounded by dry regions. These drier shores lack rainfall causing low freshwater tables and small supplies of surface or perched water. This limited water supply is difficult to transmit and can be easily depleted. In the past the towns on the leeward shores had no more than a few thousand people in total population that could be supported by the limited water supplies. However, tourist developments bring thousands of more people and higher demands which put severe stress on the water supplies. Another new water problem caused by tourism on the leeward shores is flooding. The steep relief of the mountain ranges that form the backdrop for these tourist resorts forces the development of oversized drainage facilities that are required to handle the runoff of occasional high velocity storm water runoff from Mauka rains (Myers, 1976).

Tourism development has also seen the loss of remnants of the ancient Hawaiian culture. On the island of Hawaii a number of these historic remnants along the shores were bulldozed over or unceremoniously incorporated into golf courses as hotels were built (Myers, 1976). In a separate incident on the island of Maui, the construction of an $80 million hotel was halted upon the discovery of nine hundred skeletons at an ancient burial ground dating back more than 1000 years which has been

ranked as the second largest burial ground uncovered on the island chain. This recent dispute is just another on the long list of conflicts between the demands for tourist developments and the demands for preserving the culture and scenery that make the islands attractive. There are many beach areas on the island chain, including Waikiki beach, that are known to cover other large burial sites (Manhattan Mercury, 1989).

Kirch and Kirch (1987) state that there are several reasons for the close linkage between tourism development and archaeology in Hawaii. One reason is that the geographical distribution of archaeological sites tends to closely coincide with areas of major resort and resort-related infrastructure. This is due to the fact that pre-contact Hawaiian settlements were concentrated in favorable ecological zones (Kirch, 1985) which are the same favorable ecological zones sought after by land developers as settings for resort complexes (Kirch and Kirch, 1987).

In the United States such archaeological resources are legally recognized as components of the environment and must be considered when assessing the potential impacts of development (King, 1977). This recognition and increased public outcry has lead to such areas being surveyed by archaeologists and a basic inventory of sites being prepared. The result has been a limited number of sites being recommended for preservation with others recommended for salvage excavation. However, most of the sites and up to 95% of an area are cleared for destruction after they have been surveyed. Therefore, while

the knowledge of Hawaiian sites is extended by archaeological surveys that are required before development can take place, a vast majority of the sites suffer physical destruction as a result of the same developments. This pace of destruction of the Hawaiian archaeological record is serious because these sites are a finite resource and no survey or salvage attempt can recover all the potential data and artifacts (Kirch and Kirch, 1987).

According to Farrell (1982), the environment in Hawaii is affected in two ways by the operations that support tourism. The first is a direct effect that occurs through the influx of visitors and the development of buildings, landscaping, and the recreation that results. The second impact is an indirect effect caused by semi-permanent seasonal residents who buy second homes (Farrell, 1982) or recreational homes. Recreational homes are often in unregulated subdivisions resulting in environmental deterioration (Ragatz, 1977). They are often located in areas renowned for their natural beauty and fragile environments, particularly water resources. The resulting environmental impacts can be traced to aspects of water quality deterioration (Gartner, 1987). In Hawaii, second home developments not only contribute to environmental deterioration but also reduce the amount of the Islands' agricultural land (Daws, 1977). These operations which help support tourism affect the environment just as much as the activities of the tourists themselves.

During the development of new tourist resorts in Hawaii major physical impacts occur to the environment. Soil and vegetation cover is removed, land surfaces are graded and drainage patterns are changed, and air circulation corridors are created (FIGURE 2.8). In addition, the runoff is increased dramatically, at least until the new vegetative cover is established. After the new vegetation is established the runoff will still be different, plus the environment is affected by the fertilizers applied to the new vegetation. In addition, the soils' infiltration, leaching, and illuviation rates as well as the water-holding capacity will change because of the new vegetation and, in drier areas, because of irrigation (Farrell, 1982).

Figure 2.8. Alteration of the environment for development on Oahu, Hawaii.

At the same time, grading is done elsewhere for roads, building foundations, parking lots, and tennis courts. After impacts from these activities have taken place, the newly laid drains or natural waterways introduce a considerable amount of natural debris and pollutants into the drainage system and on their way to the sea. Even with the greatest amount of care major impacts such as these are felt when sculpting a resort, especially close to the area which prompted the development-the beach (Farrell, 1982).

Not all of the environmental impacts of tourism occur on the beaches and dryland areas. Tourism development, such as reclamation and drainage, threatens the existence of the remaining wetlands in Hawaii, which includes coastal marshes, swamps, and freshwater lagoons. Development in these areas destroys natural runoff basins and habitats for waterfowl, many of which are endangered species (Farrell, 1982).

One of the more significant reclamations of swampland that is now closely associated with tourism is the Ala Wai project. The Ala Wai Canal was constructed early in the twentieth century to drain a large area of swampland which is partly occupied by Waikiki (Farrell, 1982). The Ala Wai Canal serves as the boundary between Honolulu and Waikiki in addition to providing an attractive waterfront.

The Ala Moana Shopping Center enjoyed by both tourists and local people was also built on a former swamp. The swamp was filled with dredged coral and sand during the construction of Honolulu's Ala Moana

beach park in the 1930's. The filled swamp sat as a vacant lot until the shopping center was built in the 1960's (Farrell, 1982). Although the impacts of these swampland reclamations do not seem significant today because of the services the resultant construction provides, they had a major significance when they first occurred. Projects such as Waikiki and Ala Moana reclamations would not even be contemplated by developers today because of the publics' attitudes and the environmental opposition they would encounter.

Environmental impacts from tourism have also been felt on the coral reefs in Hawaii. Extensive reef destruction has occurred as a result of dredging, filling, and general construction at Honolulu International Airport in the interest of increased tourist traffic. At Kaneohe Bay one of the most spectacular cases of reef damage exists. Untold damage to the ecosystems of the bay have occurred over the years from sediments originating from land development, freshwater runoff, and sewage outfalls. Tourism development not only affects the reef itself, it also causes fish populations to diminish and steps in the food chain to be eliminated (Farrell, 1982).

There are many impacts on the Hawaiian environment from tourism development. Some of these impacts can be avoided or their severity lessened through proper planning and development and the restriction of development in more sensitive environmental areas. Although, a number of these impacts have been discussed there are many more, some of which are yet to be discovered.

PERCEPTIONS OF IMPACT

According to Farrell (1982), environmental impact is a matter of perception. This perception is directly related to an understanding of the threshold at which a situation becomes critical and will vary between groups or individual observers. The perceiver's view of environmental impacts can be frequently altered by financial interest in an activity. The perception of an impact will become less critical as the amount of the reward or as the possibility of intervening economic opportunity increases. People most dependent on the environment for income are sometimes the least sensitive to the environment. Many times change is perceived as an impact. The most obvious changes, such as outside intrusion and crowding, are viewed as the most damaging. While less obvious changes, such as cesspool seepage or cultural dilution, are practically ignored (Farrell, 1982).

Myers (1976) claims that the negative perceptions and skepticism about tourism arise because of environmental and aesthetic concerns. There is increasing sensitivity to the need to keep places distinctive and to retain their special qualities. The fact that development can be irreversibly destructive has taken a while for many people to realize (Myers, 1976).

Farrell (1982) suggests that the majority of the Hawaiian community is no more than mildly roused by the harmful impacts of tourism. However, hostility is found in a small and growing percentage. He also states that the public is characterized by various degrees of uncertainty and

the public responds favorably to what it sees as positive benefits (higher personal income and standard of living) from tourism. However these attitudes and perceptions in the Hawaiian community are beginning to change as the impacts of tourism become more obvious and threatens the traditional rural life-styles (Farrell, 1982).

STUDIES ON PERCEPTIONS AND ATTITUDES OF TOURISM IMPACTS

Several studies have been conducted on the attitudes and perceptions of the impacts of tourism development. However, most of these studies look at residents' attitudes and perceptions and do not consider the tourists' attitudes and perceptions.

Graefe and Vaske (1987) state that an initial understanding of recreation participation and motivation is required in order to understand how people perceive a recreation or tourist experience. However, this aspect of tourism has received relatively little attention in tourism literature. Martilla and James (1977) indicate tourists' perceptions evolve from their comparisons of what they actually experience with what they expected to experience. While Stankey (1973) states that a tourist's experience is influenced by the perception of human impacts on the environment rather than by the presence of large numbers of other visitors. Lowenthal (1962) also agrees with this conclusion. He states that the origin of the observed condition influences landscape perceptions. If visitors attribute the cause of a resource condition to human disturbance rather than to natural processes they are likely to respond more negatively. Although these studies

examine tourists' perceptions they look at general perceptions and not at perceptions which address more specified environmental impacts. Many of the studies conducted on residents attitudes and perceptions address these individual issues concerned with the impacts of tourism.

One study on residents attitudes and perceptions was conducted by Lui and Var (1986). They conducted a study to determine resident attitudes towards economic, sociocultural, and ecological impacts of tourism development. They found that residents agree that tourism provides many economic and cultural benefits, but they are uncertain about environmental benefits of tourism. In addition, the study showed that residents were hesitant to attribute social and environmental costs to tourism. Finally, environmental protection was regarded by residents as having higher priority than the economic benefits of tourism. However, these same residents indicated they are not willing to lower their standard of living to achieve this environmental protection (Liu and Var, 1986).

In a separate study Liu et al. (1987) concluded that the impact of tourism on the environment is of universal concern. The results of their study found Hawaiian and Welsh residents are highly concerned with the negative socio-environmental impact of tourism. In Hawaii and Wales residents are primarily concerned with the negative impact on their environment even though tourism is a significant part of the economy. The data also revealed that residents do not blame tourism only for environmental changes. They also perceive many benefits such as

preservation of historic sites. In addition Hawaiian residents tend to be more aware of the impacts of tourism because Hawaii is continually updating tourism facilities. Residents are also highly aware of the importance of a holistic approach to planning in long-term protection of the environment (Liu, Sheldon, and Var, 1987).

One of the more comprehensive studies' on tourist issues was prepared by Public Affairs Advisory Services, Inc. for the Department of Planning and Economic Development-State of Hawaii in 1975. The public opinion poll found that the public believes that a major disadvantage of expanding Hawaii's tourist industry is an adverse affect upon the natural environment. More specifically residents under 30 years of age tend to be less favorable towards tourism and more concerned about adverse environmental effects of tourism. Likewise, higher income groups were also found to be more concerned with the impacts of tourism upon the natural environment. In addition, most of the residents polled favored additional hotel taxes to offset some of the adverse effects of tourism.

These studies on perceptions and attitudes of tourism impacts examine primarily the concerns of residents. Tourism however, is affected by and effects many people, all of which should be considered when studying tourism. In addition to considering everyone that tourism touches, more specific issues of tourism should be addressed in order to better understand the dynamics of tourism. Some of the questions that need to be addressed concerning the attitudes and perceptions of

tourists include: Are tourists apathetic about the environmental impacts of tourism? Whom do tourists feel should be responsible and concerned about environmental impacts? Furthermore, what is more important to tourists, the amount of money that they spend or environmental protection?

TOURISM PLANNING AND DEVELOPMENT DESIGN

Tourism which "has been adopted as a tool for regional and national development as well as an employment and income generator, depends on the maintenance of the social, cultural, and environmental characteristics of the society it is meant to change" (Kendall and Var, 1984). Many governments realize that tourism and the environment are inseparable and that tourism must be carefully planned. Careful planning helps avoid problems of air, water, noise and visual pollution, congestion, and ecological damage, and disruption that are common to many tourism areas. In addition, tourism planning is necessary for protection of the tourism industry. Planning for tourism for scientific purposes and environmental conservation is not enough. It is also necessary for protection of long-term investments in tourism infrastructure, attractions, facilities, services, and marketing programs (Inskeep, 1987). Tourism planning involves planning for the natural, man-made, and human elements that tourism impacts. Tourists are demanding that their environments be high-quality and pollution free as well as interesting. If these environmental expectations are not met some tourists will change their travel patterns (Inskeep, 1987).

Inskeep (1987) states that there are three levels for environmental planning of tourist resorts, hotels, and associated facilities. These levels include: land use planning; site planning; and architectural, landscaping, and engineering design. He also states that environmental impact should be considered throughout the planning process and a detailed environmental impact assessment made of the final plan. In addition, comprehensive analysis and planning must be done at both regional and local levels (Inskeep, 1987).

Tourism planning should also involve people other than planners, designers, and developers. Residents should be involved in the decision making process of developing tourism and have the opportunity to participate in all aspects of tourism. Education can also serve as an effective planning tool. Educating residents about tourism and tourists about local customs aids in socially integrating tourism into the economy. Tourism planners should try to involve government, private, community, and religious sectors in the planning process from the early stages of development (Inskeep, 1988).

One project in which citizen participation has been critical is the Hanalei Project in Hanalei Valley on the north shore of the island of Kauai, Hawaii. A citizens' group called 1,000 Friends of Kauai is working on the long term planning effort to conserve the historic and cultural resources of the area while still accommodating growth brought on by tourism. This project has sought the involvement of many constituencies, including the visitor industry, taro farmers, local

merchants, preservationists, architects, lawyers, and county planning officials. In addition, the project includes a local education coordinator who speaks at meetings and prepared questionnaires and information brochures for residents and visitors to ensure that the project's goals are flexible and meet the needs of everyone involved (Melnick and Keller, 1987).

In a state such as Hawaii with its tremendous physical assets and attraction as a tourist destination, planning environmentally sensitive tourist developments is crucial. Evidence is shown through numerous studies, such as a public opinion poll taken in 1975, that the perceptions of residents can have a significant influence on the whether or not tourist developments are successful. Additionally, a few general studies have shown that tourists' perceptions are equally important. However, as stated earlier several conflicts exist between the desires of both the residents and tourists. Everyone wants environmental protection and environmentally sensitive designs, however these ideas are often costly and must be paid for by both the taxpayer and the consumer. The bottom line for most people is money. How much are they willing to spend in order to obtain the tourism development that is both environmentally sensitive and attractive as a destination?

CHAPTER 3
METHODOLOGY

This study which focuses on tourists' perceptions of the environmental impacts of tourism in Hawaii, was designed to determine if tourists would be willing to spend more money to protect the outstanding qualities and features of the environment that makes Hawaii a major attraction. The research instrument utilized in the process was a written questionnaire survey. The questionnaire allowed participants to express their feelings and perceptions by responding to statements and questions relating to the environment and tourism in Hawaii. Qualitative data were gathered using the test instrument and analyzed to test the following hypotheses.

RESEARCH HYPOTHESES

It is expected that tourists' perceptions of the environmental impacts of tourism will be highly similar to residents' perceptions of the same or similar environmental impacts. These similarities not only include perceptions of the environmental impacts but the economic aspects of environmental protection as well. Although residents were not surveyed, information on their perceptions of tourist-related environmental impacts have been reported in articles such as those by Lui and Var (1986 and 1987) and Public Services Advisory Services, Inc. (1975). It is hypothesized that the perceptions and attitudes of tourists will show:

1. An awareness of the environmental impacts of tourism in Hawaii.

2. Apathy or no concern towards environmental impacts caused by tourism.

3. Tourists feel that the environmental impacts of tourism are primarily the people of Hawaii's problem.

4. Environmentally degraded locations are undesirable as tourist destinations.

5. An unwillingness to incur higher vacation expenses for environmental protection.

6. As the number of times tourists visit the Hawaiian islands increases so does their awareness and concern about the environmental impacts of tourism.

RESEARCH DESIGN

The research design which was employed in this study was an experiential paradigm that views people as active participants in the landscape deriving their values from experience (Taylor et al., 1987). In this study the experiential paradigm views tourists as the active participants who derive their perceptions from their experience with the Hawaiian landscape.

Experiential approaches are more subjective and idiosyncratic which makes them less suited for statistical analysis, therefore the data analysis shall be qualitative and descriptive. Sensitivity is greatly shown in the experiential paradigm. Sensitivity is the ability of the research technique to measure actual differences in values or perceptions (Taylor et al., 1987). The survey instrument in this study provides the perceptions of the tourists as well as the number and types of experiences the tourists have had while in Hawaii.

The central focus of this study is the link between these perceptions and experiences of the tourists. By using a questionnaire the tourists can by surveyed directly while experiencing the Hawaiian environment. The links between the tourists' perceptions and experiences and their measurements are illustrated in graphic form in Figure 3.1.

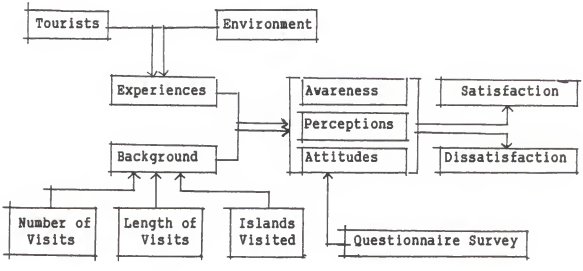

Figure 3.1: Research Design

QUESTIONNAIRE SURVEY DEVELOPMENT

A written survey questionnaire was developed to collect data that would measure tourists' perceptions of the environment and tourism. An initial pool of twenty-two statements was prepared. Statements were written to be similar to those used for the Likert scale for attitudinal measurement (Ritchie and Goeldner, 1987).

The Likert scale is one of the most frequently used measurements of attitudes and perceptions. It requires respondents to indicate a degree of agreement or disagreement with a set of statements. The scale

typically used is a five-point scale defined by the labels: strongly agree, agree, undecided, disagree, and strongly disagree (Ritchie and Goeldner, 1987). This measurement provides data that can be analyzed based on similarities in responses.

This questionnaire format allows the researcher to use a system which has close ended-questions and gives a choice of responses to participants. This system is easy to administer, easier and quicker to answer, requires no writing, and provides a means for data comparison (Oppenheim, 1966).

The initial pool of statements was developed from several informational sources. The content of the statements was derived by modifying similar questionnaires used to measure residents attitudes and perceptions of tourism. In addition, the content of the statements was discussed with faculty members at Kansas State University in the Departments of Landscape Architecture, Regional and Community Planning, Political Science, and the College of Human Ecology.

The initial statement pool was reduced to sixteen statements by eliminating irrelevant subject matter, redundant statements, and by screening statements. The faculty from the departments mentioned above examined statements for clarity, sentence legibility, and understandability of statements by tourists with varying backgrounds and levels of education. An example of the questionnaire survey is located in Appendix B.

RATING SCALE DESIGN

Measurements of the respondents' perceptions in the questionnaire survey were obtained by using the five-point Likert scale. The environmental feelings of individuals has been shown to be accurately measured by Likert scales (Kaplan, 1977).

The possible error of central tendency was reduced by allowing respondents to select a neutral category. This scale provides a midpoint between unfavorable and favorable responses and lessens the fears of extreme categories (Oppenheim, 1966).

The five-point scale was defined by descriptive labels. The descriptive labels chosen for the questionnaire survey are those frequently used for Likert scale questionnaires (Ritchie and Goeldner, 1987). The labels were opinion oriented so that participants would not be lead to believe that there were correct and incorrect responses.

The importance of a direct answer led to the development of multiple choice responses for two of the statements on the questionnaire survey. Participants were given a choice of five responses for these two statements in order to keep them consistent with the five point scale. The wording of the responses was kept to a minimum so that the participants could select a response quickly and without confusion.

In addition, the questionnaire solicited input on the tourists' backgrounds. This background information was developed to provide

information on number visits, length of stay, age, and islands visited. This information can be used to examine possible correlations between backgrounds and perceptions.

SURVEY PRESENTATION PROCEDURE

Tourists were invited to participate in the survey in three different locations in Hawaii. The three locations selected were chosen for their representation of the different types of tourist environments in Hawaii.

The first location selected was Kaanapali, a tourist resort development on the island of Maui, which typifies the kind of tourist-related development found on the outer islands. It consists of low-rise hotels (twelve stories or less) and cottages spread out over green open spaces and golf courses abutting miles of ocean front land.

The second location selected was the town of Lahaina, which is also on the island of Maui. Lahaina once served as a whaling village and contains many interesting historic buildings along the waterfront. The charm and characteristics of this early whaling village have been preserved through the restoration of older buildings and the integration of new buildings that have been carefully designed and sited.

The final location selected was Waikiki on the island of Oahu. Waikiki was one of the first areas developed on the Hawaiian islands to attract and accommodate tourists. It is characterized by high density, high rise hotels, expensive shops, and street vendors. Waikiki contains

very little open space with the exception of Waikiki Beach which is fronted by Kalakaua Boulevard and Kapiolani Park which is situated at the end of Waikiki and at the base of Diamond Head.

The number of tourists surveyed totaled seventy-six. Hawaii is an international destination and attracts tourists who speak many different languages. All of the tourists surveyed were English speaking tourists because of the difficulties that would be encountered by trying to overcome language barriers. The locations and the number of tourists that participated in the survey are listed in Figure 3.2.

Location	Number of Respondents
Kaanapali, Maui	27 tourists
Lahaina, Maui	24 tourists
Waikiki, Oahu	25 tourists

Figure 3.2: Locations and numbers of participants.

From July 28 to August 19, 1988 tourists were approached in each location as they strolled along the streets or pedestrian traffic ways and were invited to participate in the survey. A standardized approach was used along with a brief description of the purpose of the questionnaire (Appendix C). Human subject consent information was placed at the top of each questionnaire survey for each participant to read (Appendix B). Participants were instructed to ask questions if needed to fill out the questionnaire. The researcher, however, avoided answering questions or interpreting statements in any manner that might influence responses.

Once a tourist consented to fill out a questionnaire the researcher moved away from the participant to prevent intimidation or influence by the researcher upon the participant. The researcher did, however, remain within viewing distance so that once the participant completed the questionnaire he/she could quickly return the questionnaire to the researcher. The questionnaire survey took approximately seven to ten minutes to respond to all statements and questions.

CHAPTER 4
RESULTS

The results of this research data have been organized into four sections. The first section is a discussion of the overall trends of the tourists' perceptions based on response percentages from the questionnaire. This section also examines these trends for correlations and differences between tourists' perceptions and residents' perceptions of tourism in similar studies. The second section presents the trends of tourists' perceptions based on their number of visits to Hawaii. These results are evaluated to ascertain if there is a relationship between perceptions and number of visits. Section three analyzes tourists' perceptions based on the length of stay. This comparison is evaluated to determine if tourists' length of stay influences their perceptions. The final section compares and discusses the results of this study in relation to the stated research hypotheses in Chapter 3.

OVERALL TRENDS OF TOURISTS' PERCEPTIONS

Tables 4.1 through 4.4 show the results of the overall trends of tourists' perceptions. All of the tourist responses were tallied and percentages were calculated for descriptive and qualitative analysis. The results are shown based on degree of agreement or disagreement.

All of the tourists surveyed agreed or strongly agreed that the major tourist attraction to Hawaii is its environment. The majority of tourists disagreed with the statement that the environmental effects of tourism in Hawaii are of no concern to the visiting tourists (Table

4.1). However, a significant number of the tourists either agreed or were undecided (26.2%) about this statement. Supporting this attitude, 74.7% of the tourists stated that everyone should be concerned about tourism (Table 4.2). While, 13.3% of the tourists said that most of the concern over the environmental impacts of tourism in Hawaii should lie with state and local governments. Based on the tourist responses, these two questions support each other and show that the majority of the tourists believe that environmental concern is the responsibility of everyone involved in tourism.

Several of the statements on the questionnaire survey addressed specific environmental impacts of tourism. For the most part the tourists agreed that these impacts were caused by tourism. The tourists however, were undecided about the causes of some of the impacts that are not highly evident.

The majority (81.2%) agreed that traffic congestion is increased by tourism. This environmental impact is highly visible in most of the resort regions, especially in Waikiki. Another impact that most agreed on was overcrowding (63.1%). However, a significant number of those surveyed were also undecided as to whether or not this impact could be attributed to tourism (18.4%). Overcrowding is visible in the tourist regions, yet, many of these regions contain shopping districts that are also frequented by residents. This fact could alter tourists perceptions of whether or not this problem is caused by tourism because

it is sometimes difficult to tell the difference between tourists and residents.

One of the impacts caused by tourism which may not always be as evident is the destruction of Hawaii's natural environment. One half (50%) of the tourists surveyed agreed that tourism is detrimental to the natural environment, while nearly one-quarter were undecided (23.7%) or disagreed (26.3%) with this statement.

Another known impact of tourism is the depletion of wildlife and wildlife habitats. This impact may also not always be as noticeable to tourists as is indicated by their perceptions of this impact. Over one-third of those surveyed were undecided (35.5%) about the cause of the depletion of wildlife and wildlife habitats. However, a slightly larger number (38%) agreed with this statement and about one-quarter (26.4) of the tourists disagreed with the statement. Another impact which follows this perception trend is pollution of Hawaii's freshwater supply. A high number (36.8%) of the tourists were undecided about freshwater pollution.

When presented with statements concerning development quality and the economic benefits of tourism, the majority of the tourists were in agreement. Better designed leisure and recreational facilities were attributed to tourism demands by 83.8% of the tourists. It was also perceived by 63.1%, that fewer facilities would be developed if environmental protection were increased. Finally, the economic

benefits of tourism were weighed as being more important than the environmental costs.

Unlike tourists, Hawaiian residents considered environmental protection more important than the economic benefits of tourism. But, when asked if they would be willing to lower their standard of living for environmental protection the majority said no (Lui and Var, 1986).

In comparison, when asked which was more important between saving money and environmental protection the tourists responded to environmental protection. The majority (72.3%) of the tourists disagreed that saving money was more important than protecting Hawaii's environment. However, when asked how much more they would be willing to spend for environmental protection most responded to only $50 to $100 (Table 4.4). But a significant percentage also offered to pay over $100(16.4%) and even over $200(27.4%).

When comparing these results to other studies on residents attitudes and perceptions of the environmental impacts of tourism many similarities can be found. Lui and Var (1986) found that the majority of the residents (38%) attribute overcrowding to tourism which is in agreement with what the tourists perceive about overcrowding. The tourists and residents were also in agreement that tourism has resulted in more and better opportunities for leisure and recreational activities.

TABLE 4.1: Tourists perceptions of the environmental impacts of tourism in Hawaii.

Statement on Survey Instrument	%SA	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	65.8	34.2	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	3.9	10.5	11.8	38.2	35.6
Traffic congestion is increased by the tourists in Hawaii.	47.4	33.8	12.0	6.8	0.0
Crowding in Hawaii is a negative impact of tourism.	27.6	35.5	18.4	14.5	4.0
Tourism causes destruction of Hawaii's natural environment.	13.2	36.8	23.7	22.3	4.0
The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.	10.5	27.5	35.5	21.1	5.3
Increased litter in Hawaii is a result of tourism.	13.3	45.3	20.0	16.0	5.4
Tourism contributes to increased pollution of Hawaii's freshwater supply.	10.5	34.2	36.8	15.8	2.7
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	25.7	58.1	13.5	2.7	0.0
Increased environmental protection would result in less development in Hawaii.	19.7	43.4	23.7	13.2	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	24.0	45.3	22.7	5.3	2.7
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	3.9	3.9	19.8	60.5	11.8

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree, SD=strongly disagree

TABLE 4.2: Tourists' perceptions of environmental concern.

Question: Who do you believe should be the most concerned about the environmental impacts of tourism in Hawaii?

Response Choices	% Agree
State residents	8.0
State and local governments	13.3
Tourists	2.7
Tourist industry	1.3
Everyone	74.7

TABLE 4.3: Tourists' attraction to high density development.

Question: Would you be as attracted to Hawaii, as you currently are if its natural environment was as developed as Waikiki for tourist accommodations and facilities.

Response Choices	% Agree
Yes	10.7
No	89.3

TABLE 4.4: Tourists' economic attitude towards environmental protection.

Question: How much more would you be willing to spend to vacation in Hawaii, if you knew that the higher expenses were a result of increased environmental protection?

Response Choices	% Agree
less than $25	6.9
$25-$50	13.7
$50-$100	35.6
$100-$200	16.4
more than $200	27.4

In a study by Public Affairs Advisory Services, Inc. (1975) residents expressed that the major disadvantage of tourism was the adverse affect upon the natural environment. Similarly, a significant number of the tourists (50%) attributed destruction of the natural environment to tourism. Lui and Var (1986) found however, that residents were hesitant to blame environmental costs on tourism. In correlation to these findings half of the tourists surveyed disagreed or were undecided that tourism was the source of the degradation of Hawaii's environment.

PERCEPTION TRENDS BASED ON NUMBER OF VISITS TO HAWAII

Tables 4.5 through 4.11 show the tourists' perceptions of the environmental impacts after various numbers of visits. As stated earlier all of the tourists agreed or strongly agreed that Hawaii's environment is its major tourist attraction. However, this trend moves from an almost even split in degree of agreement to 100% strong agreement as the number of visits increase.

This same trend in seen in the tourists responses to the statement that the environmental effects of tourism is of no concern to the visiting tourists. The majority (37.2%) of those visiting Hawaii for the first time disagreed with this statement. As the number of visits increased however, so did the degree of disagreement, which moved to 100% disagreement for tourists with seven or more visits. This attitude is also reflected in the tourists responses to whom they feel should be the most concerned about the impacts of tourism (Table 4.9).

As the number of visits increased so did the tourists' feelings that everyone should be concerned about tourism impacts, from 59.5% for first time visitors to 100% for tourists with more than seven visits.

A fluctuation was seen in the responses to the statements concerning specific environmental impacts of tourism. The only evident trend is that the tourists, for the most part, seem to be more decisive whether it be in agreement or disagreement as their number of visits increased.

The number of tourists agreeing that traffic congestion is increased by tourism steadily increased until the number of their visits reached seven or more. At this point there was a noticeable drop from 100% to 67% in agreement. The perception of overcrowding hovered around 65% in agreement for all of the tourists with the exception of those with four to seven visits who dipped to 40% in agreement. Those with four to seven visits were equally divided on the issue of overcrowding with 40% that strongly agree, 40% that strongly disagree, and 20% that were undecided.

On the issue of destruction of the natural environment the tourists did not have a strong perception as whether tourism was to blame. The first time visitors agreed for the most part(53.5%) that this destruction was caused by tourism. However, a significant number was also undecided(23.3%). The number of tourists that were undecided jumped markedly to 60% for those with four to seven visits and then dropped off to 33.3% for those with more than seven visits.

When asked their perceptions about the depletion of wildlife and wildlife habitats most of the tourists were again undecided. Of the first time visitors, 41.9% were undecided and 44.2% either agreed or strongly agreed that tourism was the reason for these depletions. Both of these results dropped for those with one to three visits, while 45% disagreed that tourism was the culprit. Again, tourists with four to seven visits were the most undecided with 60%. An even division of agreement was seen for tourists with more than seven visits with 33.3% of the responses going to each of the choices strongly agree, undecided, and strongly disagree.

The number of tourists that thought tourism was the cause of increased litter in Hawaii fluctuated with the number of visits. The first time visitors highly agreed (62.8%) that tourism increased litter, while only 50% of the tourists with one to three visits agreed. The degree of agreement was the highest for tourists with four to seven visits with 80% agreement that tourism caused a greater amount of litter. However, those surveyed with more than seven visits had a significant drop in agreement with 33.3% believing tourism contributes to more litter.

Freshwater pollution is an environmental impact of tourism that the tourists were also indecisive about. As the number of visits by tourists increased so did the number that were undecided whether or not freshwater pollution was caused by pollution. The number of first time visitors that were undecided was 34.9% which rose to 67% for visitors

with more than seven trips to Hawaii. The majority (58.2%) of the first time visitors agreed that tourism was the reason for an increase in freshwater pollution. While the remainder (33.0%) of the tourists with more than seven visits strongly disagreed with this statement.

Fluctuations were also seen in the tourists responses to the statements concerning economics and environmental protection. The majority (83.7%) agreed that tourism resulted in better designed leisure and recreational facilities. The majority also agreed that less development would occur if there was an increase in environmental protection measures. The greatest fluctuation was seen in the issue of economic benefits and environmental costs of tourism. The number of tourists that agreed that tourism was more beneficial to the economy than costly to the environment steadily increased with the number of visits until they reached four to seven visits. Tourists with four to seven visits were mostly undecided (60%) to which effect of tourism was more prevalent. While, tourists with more than seven visits agreed 100% that tourism benefitted the economy more than it cost the environment.

The majority of the tourists also agreed that environmental protection was more important than saving money while vacationing in Hawaii. This trend increased to 80% for tourists with four to seven visits then decreased to 67% for those with more than seven visits. The amount of money these tourists would be willing to spend also increased as the

TABLE 4.5: First time visitors perceptions of environmental impacts of tourism in Hawaii.

Statement on Survey Instrument	%SD	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	65.1	34.9	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	4.7	16.3	16.3	37.2	25.5
Traffic congestion is increased by the tourists in Hawaii.	50.0	27.5	17.5	5.0	0.0
Crowding in Hawaii is a negative impact of tourism.	30.2	34.9	23.3	9.3	2.3
Tourism causes destruction of Hawaii's natural environment.	16.3	37.2	23.3	20.9	2.3
The depletion of Hawaii's wildlife and wildlife habitat's is a result of tourism.	9.3	34.9	41.9	11.6	2.3
Increased litter in Hawaii is a result of tourism.	14.0	48.8	25.6	9.3	2.3
Tourism contributes to increased pollution of Hawaii's freshwater supply.	14.0	44.2	34.9	6.9	0.0
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	30.2	53.5	11.6	4.7	0.0
Increased environmental protection would result in less development in Hawaii.	18.6	34.9	30.2	16.3	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	28.6	38.1	26.2	7.1	0.0
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	2.3	4.7	20.9	65.1	7.0

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree, SD=strongly disagree

TABLE 4.6: Tourists' perceptions of the environmental impacts of tourism in Hawaii after 1 to 3 visits.

Statement on Survey Instrument	%SA	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	55.0	45.0	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	5.0	5.0	5.0	55.0	30.0
Traffic congestion is increased by the tourists in Hawaii.	30.0	60.0	5.0	5.0	0.0
Crowding in Hawaii is a negative impact of tourism.	15.0	50.0	10.0	25.0	0.0
Tourism causes destruction of Hawaii's natural environment.	10.0	45.0	10.0	35.0	0.0
The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.	5.0	15.0	30.0	45.0	5.0
Increased litter in Hawaii is a result of tourism.	10.0	40.0	15.0	30.0	5.0
Tourism contributes to increased pollution of Hawaii's freshwater supply.	5.0	15.0	35.0	45.0	0.0
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	15.0	75.0	10.0	0.0	0.0
Increased environmental protection would result in less development in Hawaii.	15.0	55.0	20.0	10.0	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	20.0	50.0	15.0	10.0	5.0
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	0.0	5.0	20.0	60.0	15.0

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree, SD=strongly disagree

TABLE 4.7: Tourists' perceptions of the environmental impacts of tourism in Hawaii after 4 to 7 visits.

Statement on Survey Instrument	%SA	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	80.0	20.0	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	0.0	0.0	0.0	20.0	80.0
Traffic congestion is increases by the tourists in Hawaii.	20.0	80.0	0.0	0.0	0.0
Crowding in Hawaii is a negative impact of tourism.	40.0	0.0	20.0	0.0	40.0
Tourism causes destruction of Hawaii's natural environment.	0.0	40.0	60.0	0.0	0.0
The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.	0.0	40.0	80.0	0.0	0.0
Increased litter in Hawaii is a result of tourism.	20.0	60.0	20.0	0.0	0.0
Tourism contributes to increased pollution of Hawaii's freshwater supply.	0.0	60.0	40.0	0.0	0.0
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	0.0	67.0	33.0	0.0	0.0
Increased environmental protection would result in less development in Hawaii.	0.0	80.0	20.0	0.0	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	0.0	40.0	60.0	0.0	0.0
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	0.0	0.0	20.0	40.0	40.0

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree SD=strongly disagree

TABLE 4.8: Tourists' perceptions of the environmental impacts of tourism in Hawaii after more than 7 visits.

Statement on Survey Instrument	%SA	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	100.0	0.0	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	0.0	0.0	0.0	0.0	100.0
Traffic congestion is increased by the tourists in Hawaii.	67.0	0.0	0.0	33.0	0.0
Crowding in Hawaii is a negative impact of tourism.	33.3	33.3	0.0	33.3	0.0
Tourism causes destruction of Hawaii's natural environment.	0.0	33.3	33.3	0.0	33.3
The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.	33.3	0.0	33.3	0.0	33.3
Increased litter in Hawaii is a result of tourism.	0.0	33.3	0.0	33.3	33.3
Tourism contributes to increased pollution of Hawaii's freshwater supply.	0.0	0.0	67.0	0.0	33.3
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	33.3	67.0	0.0	0.0	0.0
Increased environmental protection would result in less development in Hawaii.	33.3	67.0	0.0	0.0	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	67.0	33.3	0.0	0.0	0.0
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	33.0	0.0	0.0	67.0	0.0

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree, SD=strongly disagree

TABLE 4.9: Tourists' perceptions of environmental concern after various lengths of visits.

Question: Who do you believe should be the most concerned about the environmental impacts of tourism in Hawaii?

	% Agree			
	Number of visits			
Response Choices	1st	1-3	4-7	>7
State residents	11.9	5.0	0.0	0.0
State and local governments	21.4	0.0	20.0	0.0
Tourists	4.8	0.0	0.0	0.0
Tourist industry	2.4	0.0	0.0	0.0
Everyone	59.5	95.0	80.0	100.0

TABLE 4.10: Tourists' attraction to high density development after various lengths of visits.

Question: Would you be as attracted to Hawaii, as you currently are if its natural environment was as developed as Waikiki for tourist accommodations and facilities?

	% Agree			
	Number of Visits			
Response Choices	1st	1-3	4-7	>7
Yes	14.3	5.0	0.0	0.0
No	85.7	95.0	100.0	100.0

TABLE 4.11: Tourists' economic attitude towards environmental protection after various lengths of visits.

Question: How much more would you be willing to spend to vacation in Hawaii, if you knew that the higher expenses were a result of increased environmental protection?

	% Agree			
	Number of Visits			
Response Choices	1st	1-3	4-7	>7
less than $25	10.0	5.0	0.0	0.0
$25-$50	17.5	0.0	20.0	33.0
$50-$100	40.0	40.0	40.0	0.0
$100-$200	15.0	20.0	40.0	0.0
more than $200	17.5	35.0	0.0	67.0

number of visits increased, with 67% of the tourists with more than seven visits willing to spend more than $200 extra for environmental protection in Hawaii (Table 4.11).

PERCEPTION TRENDS BASED ON LENGTH OF STAY IN HAWAII

Tourists perceptions of the environmental impacts of tourism based on average lengths of stay are shown in Tables 4.12 through 4.18. The tourists' degree of agreement that Hawaii's environment is the major tourist attraction ranged from 60% to 70% for the strongly agree response for all lengths of stay.

The tourists' responses to the statement that the environmental effects of tourism in Hawaii are of no concern to the visiting tourists were for the most part in disagreement. The number that disagreed steadily increased as their length of stay increased with the exception of a slight decrease for tourists with an average length of stay from ten to fourteen days. This same trend was seen for the question asking the tourists who they feel should be concerned about environmental impacts. The majority of those surveyed felt everyone should be concerned and this belief increased as the average length of stay increased except for tourists with an average length of stay of ten to fourteen days which decreased to 57.2% (Table 4.16).

The responses to the statements concerning the more specific impacts generally saw an increase in agreement as the length of stay increased. The number of tourists that agreed that tourism increased traffic

congestion increased from 70% for visitors with an average stay of less than seven days to 91.7% for visitors with an average length of stay of more than fourteen days. The tourists perceptions of overcrowding also increased as their length of stay increased. An increase was seen from 50% for those with an average length of stay of less than seven days to 76.9% for an average stay of more than fourteen days. This same trend was also seen for tourists' perceptions of increased litter from tourism with the exception of a 10% decrease for tourists with an average length of stay of more than fourteen days.

This trend also continues to be seen in the tourists' perceptions of tourism causing destruction of the natural environment. The number of tourists that agreed to this statement increased from 40% to 61.5% as the average length of stay increased. This trend was interrupted by the tourists' perceptions of the depletion of wildlife and wildlife habitats. Initially an increase was seen in the agreement that tourism causes this depletion. However, those with longer visits had a decrease in agreement and an increase in the number that were undecided.

The perceptions of tourists concerning economics and environmental protection generally make a significant jump as the average length of stay went beyond seven days. Only 50% of the tourists with an average stay of less than seven days agreed that tourism demands have resulted in better designed leisure and recreational facilities. While 94.3% of the tourists with an average length of stay of seven to ten days agreed

TABLE 4.12: Tourists' perceptions of the environmental impacts of tourism in Hawaii whose average length of stay was less than 7 days.

Statement on Survey Instrument	%SA	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	60.0	40.0	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	10.0	30.0	10.0	40.0	10.0
Traffic congestion is increased by the tourists in Hawaii.	30.0	40.0	30.0	0.0	0.0
Crowding in Hawaii is a negative impact of tourism.	10.0	40.0	20.0	30.0	0.0
Tourism causes destruction of Hawaii's natural environment.	10.0	30.0	40.0	20.0	0.0
The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.	10.0	20.0	60.0	10.0	0.0
Increased litter in Hawaii is a result of tourism.	10.0	40.0	50.0	0.0	0.0
Tourism contributes to increased pollution of Hawaii's freshwater supply.	10.0	30.0	60.0	0.0	0.0
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	0.0	50.0	30.0	20.0	0.0
Increased environmental protection would result in less development in Hawaii.	10.0	40.0	50.0	0.0	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	20.0	50.0	20.0	10.0	0.0
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	0.0	10.0	20.0	60.0	10.0

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree, SD=strongly disagree

TABLE 4.13: Tourists' perceptions of the environmental impacts of tourism in Hawaii whose average length of stay was 7 to 10 days.

Statement on Survey Instrument	%SA	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	69.4	30.6	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	0.0	11.1	11.1	30.6	47.2
Traffic congestion is increased by the tourists in Hawaii.	54.3	28.6	5.7	11.4	0.0
Crowding in Hawaii is a negative impact of tourism.	30.6	25.0	25.0	11.1	8.3
Tourism causes destruction of Hawaii's natural environment.	11.1	38.9	16.7	25.0	8.3
The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.	5.6	36.1	30.6	19.4	8.3
Increased litter in Hawaii is a result of tourism.	5.4	51.4	24.3	10.8	8.1
Tourism contributes to increased pollution of Hawaii's freshwater supply.	2.7	40.6	32.4	18.9	5.4
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	40.0	54.3	5.7	0.0	0.0
Increased environmental protection would result in less development in Hawaii.	18.9	51.4	21.6	8.1	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	25.0	41.7	27.8	5.5	0.0
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	8.1	2.7	16.2	59.5	13.5

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree, SD=strongly disagree

TABLE 4.14: Tourists' perceptions of the environmental impacts of tourism in Hawaii whose length of stay averaged 10 to 14 days.

Statement on Survey Instrument	%SA	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	64.3	35.7	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	7.1	0.0	21.4	42.9	28.6
Traffic congestion is increased by the tourists in Hawaii.	28.6	50.0	21.4	0.0	0.0
Crowding in Hawaii is a negative impact of tourism.	35.7	35.7	7.1	21.5	0.0
Tourism causes destruction of Hawaii's natural environment.	21.4	28.6	28.6	21.4	0.0
The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.	14.3	21.4	42.9	21.4	0.0
Increased litter in Hawaii is a result of tourism.	42.9	28.6	7.1	21.4	0.0
Tourism contributes to increased pollution of Hawaii's freshwater supply.	35.7	35.7	14.3	14.3	0.0
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	28.6	57.1	14.3	0.0	0.0
Increased environmental protection would result in less development in Hawaii.	28.6	14.3	35.7	21.4	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	21.4	42.9	21.4	7.1	7.2
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	0.0	7.2	21.4	57.1	14.3

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree, SD=strongly disagree

TABLE 4.15: Tourists' perceptions of the environmental impacts of tourism in Hawaii whose length of stay averages more than 14 days.

Statement on Survey Instrument	%SA	%A	%UD	%D	%SD
Hawaii's environment is the major tourist attraction.	61.5	38.5	0.0	0.0	0.0
The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.	7.7	7.7	0.0	53.8	30.8
Traffic congestion is increased by the tourists in Hawaii.	50.0	41.7	0.0	8.3	0.0
Crowding in Hawaii is a negative impact of tourism.	15.4	61.5	7.7	15.4	0.0
Tourism causes destruction of Hawaii's natural environment.	7.7	53.8	23.1	15.4	0.0
The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.	15.4	15.4	46.1	15.4	7.7
Increased litter in Hawaii is a result of tourism.	0.0	61.5	0.0	30.8	7.7
Tourism contributes to increased pollution of Hawaii's freshwater supply.	0.0	15.4	61.5	23.1	0.0
Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.	0.0	92.3	7.7	0.0	0.0
Increased environmental protection would result in less development in Hawaii.	0.0	69.2	7.7	23.1	0.0
Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.	38.5	38.5	15.3	0.0	7.7
Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.	0.0	0.0	15.4	76.9	7.7

Note. SA=strongly agree, A=agree, UD=undecided, D=disagree, SD=strongly agree

TABLE 4.16: Tourists' perceptions of environmental concern whose length of stay varies.

Question: Who do you believe should be the most concerned about the environmental impacts of tourism in Hawaii?

	% Agree			
	Length of Stay in days			
Response Choices	<7	7-10	10-14	>14
State residents	22.2	8.3	7.1	0.0
State and local governments	11.1	16.7	21.4	0.0
Tourists	0.0	0.0	14.3	0.0
Tourist industry	0.0	2.8	0.0	0.0
Everyone	66.7	72.2	57.2	100.0

TABLE 4.17: Tourists' attraction to high density development whose length of stay varies.

Question: Would you be as attracted to Hawaii, as you currently are if its natural environment was as developed as Waikiki for tourist accommodations and facilities?

	% Agree			
	Length of Stay in days			
Response Choices	<7	7-10	10-14	>14
Yes	0.0	13.5	7.7	7.7
No	100.0	86.5	92.3	92.3

TABLE 4.18: Tourists' economic attitude towards environmental protection whose length of stay varies.

Question: How much more would you be willing to spend to vacation in Hawaii, if you knew that the higher expenses were a result of increased environmental protection?

	% Agree			
	Length of Stay in days			
Response Choices	<7	7-10	10-14	>14
less than $25	12.5	11.1	0.0	0.0
$25-$50	12.5	13.9	28.6	0.0
$50-$100	50.0	33.3	42.8	30.8
$100-$200	25.0	16.7	28.6	0.0
more than $200	0.0	25.0	0.0	69.2

to this statement. A similar trend is seen in the responses to the statement that increased environmental protection would result in less development. Again 50% of those surveyed staying less than seven days agreed and this percentage jumped to 70.3% for the tourists agreeing who had an average length of stay of seven to ten days.

Furthermore, the number of tourists that agreed that tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment decreased, except for those tourists staying for more than fourteen days. The number agreeing decreased from 70% to 64.3% then jumped back up to 77%. These tourists also agreed for the most part that environmental protection is more important than saving money while vacationing in Hawaii. The majority of those surveyed responded that they would be willing to spend an additional $50 to $100 while vacationing for environmental protection. While the majority of the tourists staying for more than fourteen days said they would be willing to spend more than $200 extra (Table 4.18).

COMPARISON OF RESULTS WITH RESEARCH HYPOTHESES

The measurement and analysis of data in this study produced results which can be compared with the research hypotheses as stated in Chapter 3.

It was hypothesized that tourists' perceptions of the environmental impacts of tourism would be highly similar to residents' perceptions of the same or similar environmental impacts. As stated in section one of

this chapter the results of the tourist surveys showed both some similarities and some dissimilarities between tourists' and residents' perceptions. Some of the similarities found include perceptions of overcrowding, leisure and recreational facilities, and degradation of the natural environment. Both the tourists and residents attributed an increase in destruction of the natural environment to tourism. In contrast, tourists and residents appear to disagree on whether environmental protection or economic benefits is more important to Hawaii. In a study by Lui and Var (1986) they found that Hawaiian residents considered environmental protection more important than economic benefits. While this study indicates that tourists believe the economic benefits of tourism are more important than environmental protection.

It was also hypothesized that the perceptions and attitudes of tourists would show an awareness of the environmental impacts of tourism in Hawaii. The majority of the responses of those surveyed indicated that there is a great awareness that tourism causes impacts upon the environment.

The results also revealed that tourists are not apathetic towards environmental impacts caused by tourism, which is contrary to that which was hypothesized. The majority of the respondents believed that everyone should be concerned about the environmental impacts of tourism. A significant number of first time visitors and those with an average length of stay of less than seven days agreed with the majority.

However, the number that believed that everyone should be concerned increased as their number of visits and length of stay increased.

The results also contradicted the third hypothesis which follows the same line of thought as the second hypothesis. The third hypothesis states that tourists would feel that the environmental impacts of tourism are primarily the people of Hawaii's problem. As stated previously the majority of the tourists feel that everyone should be concerned about the environmental impacts of tourism in Hawaii.

It was also hypothesized that environmentally degraded locations would be undesirable as tourist destinations. The results indicate that most tourists are not attracted to environmentally degraded destinations. These tourists indicated that they would not be as attracted to Hawaii if its natural environment was as developed as Waikiki for tourist accommodations and facilities.

The responses of those surveyed also contradicted the hypothesis that tourists would be unwilling to incur higher vacation expenses for environmental protection. The majority stated that they would be willing to spend an additional $50 to $100 for environmental protection. However, an equally significant number stated they would be willing to spend more than an additional $100 or even more than $200 while vacationing to ensure environmental protection.

Finally, it was hypothesized that as the number of times tourists visit the Hawaiian islands increases so does their awareness and concern about the environmental impacts of tourism. The results of the survey generally support this hypothesis. The specific details of the survey results concerning this hypothesis are discussed further in section two of this chapter.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research was focused on the following major issues:

1) the development of a measurement instrument with application to a specific topic and specific population;

2) the collection of data from a specific target group for descriptive and qualitative analysis;

3) qualitative and descriptive analysis of data for use in comparison between respondents as well as with respondents of previous studies;

4) the evaluation of the changes in perceptions as a result of longer lengths of stay and increased number of visits;

5) the evaluation of the overall research results to determine the success and/or limits of the techniques and procedures;

6) the development of recommendations for further research and study and for consideration of tourists' perceptions when planning and designing tourists' developments.

Chapter 5 analyzes and interprets the findings of this study and discusses the results in regard to the major research issues stated.

1. INSTRUMENT DEVELOPMENT

The basis for the test instrument development was a combination of techniques. The primary technique was the adaption of questionnaire surveys used previously to survey residents. For further refinement of the questionnaire survey various individuals in the fields of landscape architecture, regional and community planning, and the tourism industry were consulted.

Limitations of the test instrument seem to lie in a few of the specific questions asked of the tourists. The questions were slightly vague or asked the tourists to compare experiences they might not have had, this in turn required the tourists to make an assumption or interpretation. Such an assumption or interpretation can alter the data collected.

Overall however, the questionnaire survey was found to produce informative results. The majority of the questions on the questionnaire survey were easily understood by the respondents allowing them to make quick responses.

2. DATA COLLECTION

Data were collected to test the research hypotheses in the area of environmental impact perceptions and attitudes. The data were collected from a specific target group which included tourists of the Hawaiian islands. The technique used to collect data from this target group was solicitation of respondents in predominantly tourist areas.

The limitations of the data collection procedure include time, distance, and expense. The time required to solicit each respondent directly and the time required for the respondent to complete the questionnaire survey was approximately ten minutes. This length of time reduced the number of respondents that could be contacted to complete the questionnaire. The distance between the major tourists destinations on the different islands and the expense of travelling to each of these

destinations also limited the number, as well as the variety of respondents that could be contacted.

Despite these limitations, the collection of data was successful. The direct approach for soliciting respondents gave almost a 100% rate of return compared to a typical response rate of 20% to 25% for most mailed questionnaire surveys. In addition, most tourists in Hawaii visit a number of the tourist resorts while vacationing therefore it was felt by the researcher that a good cross-section of the tourists were surveyed in the selected locations.

3. DATA ANALYSIS

Qualitative and descriptive analyses were used to analyze the data in this study. The tourists' responses were tallied and percentages were calculated to be used to make comparisons and conclusions.

The procedure of data analysis used proved to be satisfactory for the purposes of this study. By calculating percentages the researcher was able to analyze the results in a manner that made them easily understood by anyone interested in the study and the results it produced. In addition, the qualitative and descriptive analyses allowed an easy comparison between the results of this study and other studies concerning residents' perceptions.

This study and its results could be enhanced further by assigning numerical values to the five-point Likert scale and analyzing the data

quantitatively to obtain statistical results. The statistical data which might prove useful include mean, standard deviation, and probabilities.

4. EVALUATION OF PERCEPTION CHANGES

The qualitative and descriptive analyses of the data produced results which supported the hypothesis that as the number of times tourists visit the Hawaiian islands increases so does their awareness and concern about the environmental impacts of tourism. The same was found to be true with the length of stay. As the length of stay increased so did tourists awareness of the environmental impacts of tourism.

Many reasons for this increase in awareness can be speculated upon and could be grounds for further research. However, the trends in the tourists perceptions suggest that the basic reason for their increased awareness and concern was familiarity with, and exposure to, the Hawaiian environment. As the tourists length of stay and number of visits increased they tended to travel to more of the resort destinations found on the outer islands, as well as the more traditional resort areas.

Furthermore, it can be concluded that tourists with a higher number of visits to Hawaii would be more aware of the changes that have occurred in Hawaii due to development. These tourists have had more experiences in Hawaii and are therefore more familiar with the Hawaiian environment and way of life. Familiarity is defined as being well acquainted with

something, which is true for tourists who have visited the Hawaiian islands numerous times. As the length of stay and number of visits increase tourists have more experiences which they can compare and use to form their perceptions of the environmental impacts of tourism.

The different land uses and design characteristics found among the various resort developments in Hawaii did not appear to influence the tourists' perceptions. There are three major types of tourist developments in Hawaii: intensive land development, extensive land development, and historic restoration and/or preservation. Most of the tourists that visit Hawaii visit all three of these types of developments and therefore their perceptions are based on this exposure. The majority did state however, that they would not be as attracted to Hawaii if its remaining natural areas became intensively developed like that of Waikiki. This response indicates that tourists perceive intensive developments as less attractive and as a significant cause of environmental impacts.

In addition, the results from the survey indicate that the current land use planning in Hawaii is not adequate enough to regulate the growth and design of tourist facilities. The majority surveyed believed that tourism and tourism developments are causing destruction and having a significant impacts on Hawaii's environment. The majority of those surveyed also indicated that they believed that increased environmental protection would result in less development and that they would be willing to help pay for this protection. It can be concluded from these

attitudes that while Hawaii's land use planning may be slowing development of natural areas, it is not adequate enough to regulate growth into these areas. If the present rate of growth of tourism developments in Hawaii is not more adequately regulated an overabundance of tourism developments could hurt Hawaii's tourism industry by making Hawaii less attractive to tourists as they begin to perceive the environmental degradation that results from exceeding the islands carrying capacities.

5. EVALUATION OF OVERALL RESEARCH RESULTS

An examination of the research results and findings indicates areas of both success and limitations. The analysis of the results were generally successful for the purposes of this study and aided in proving or disproving the research hypotheses. The analysis gave a good basis for comparisons between tourists and the variables in the study. In addition, the analysis was satisfactory in that it allowed trends in the responses to be determined and evaluated. Overall, the use of qualitative and descriptive analysis was an effective means of producing results which were useful and significant.

Although, the analyses of the results were generally successful there are some additional measures that could have been taken to improve the study and analysis. Some of the research results fluctuated slightly between groups of tourists, such as those with 4 to 7 visits and the other lengths of visits. However, these fluctuations were not enough to alter the overall conclusions about the tourists' perceptions and

attitudes. Several reasons for these fluctuations can be speculated upon such as the number of tourists contacted and the limited time frame in which the survey was conducted. One way to improve the overall research results would be to increase the number of tourists surveyed as well as expanding the time frame of the survey to include both the summer and winter tourist seasons in Hawaii.

6. RECOMMENDATIONS

A major goal of this study was the measurement and collection of informative data relating to the perceptions and attitudes of the tourists in Hawaii towards the environmental impacts of tourism. The format and subject matter of this study could be used in documentation and evaluation of environmental perceptions of other populations in different tourism regions.

Some variations of this research would also be informative and useful to determine perceptions of tourists. Enroute questionnaires which survey first time visitors prior to arriving at their destinations and upon completion of their vacation would be helpful in determining whether or not exposure to an environment alters perceptions. Furthermore, the impact of educating the public could be evaluated to determine if perceptions are different between populations that have been educated about the environmental impacts of tourism and those that have not been educated.

Evaluation techniques such as the one used in this study as well as those mentioned for further research can be very useful for professionals such as landscape architects and planners in determination of tourists perceptions, needs, and desires in regard to environmental protection and design.

Many areas of conflict exist between tourism and the environment. The areas of conflict that exist between tourism development and environmental protection can be evaluated further and better understood by examining the perceptions and attitudes of those affected by these conflicts. It is important for designers to understand these conflicts and the perceptions that they create. Most tourists will bypass areas that they perceive to be environmentally degraded. Therefore, it is critical that professionals be aware of these perceptions in order to create plans and designs that can mitigate the environmental impacts of tourism.

Furthermore, not only designers, but everyone involved in the tourism industry in Hawaii should be concerned with tourists' perceptions of the environmental impacts of tourism in Hawaii. Tourism planning involves many people; from the voter and taxpayer, to the planner, designer, and developer. Therefore it is critical that tourists' perceptions be considered in every aspect of planning and development, because if their perceptions become too negative Hawaii will lose its attractiveness as a tourist destination. Without tourists, Hawaii's primary economic resource, tourism, will lose its livelihood.

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APPENDIX A
OPERATIONAL DEFINITIONS

For the purposes of this study, specific meanings have been associated with the following terms and concepts.

Tourist -- A person who undertakes a journey for pleasure, recreation, or culture, that enters a country or visits a place for a temporary sojourn of not less than 24 hours and spends the money he brought in, without seeking or taking up work or employment in the country or place of his visit.

Tourism -- The act of travelling to a geographical location, other than the one at which the tourist resides, for the enjoyment of the environment and leisure and recreation activities.

Destination -- The geographical location that the tourist has decided to travel to for leisure and recreational activities.

Tourism development -- Development of buildings, facilities, and recreational areas associated with the services and activities offered to tourists.

Environmental impacts -- Those impacts placed upon the environment through development and changes of the environment.

Tourist perceptions -- The ideas that tourist form concerning the conditions or issues surrounding them.

Environmental protection -- Protection of the environment from development and land uses that would be detrimental to natural resources, unique and endangered ecosystems, and environments having social, cultural, or historic significance.

Carrying capacity -- The amount and type of development an environment is able to sustain without suffering degradation of its natural features and resources.

APPENDIX B
QUESTIONNAIRE SURVEY

HAWAII: TOURISM AND THE ENVIRONMENT
Department of Landscape Architecture
Kansas State University

This survey is part of a thesis research project on tourism and the environment being conducted by a graduate student at Kansas State University. The survey should take approximately 5 minutes to finish and is completely voluntary. You may refuse to participate or discontinue your participation at anytime during the survey without penalty. All answers are anonymous. They will be used for research and evaluation purposes only.

Completing this survey involves no foreseeable risks or benefits to you. The anticipated benefits to the research from this survey and its evaluation include: increased knowledge, education, and potential environmental applications.

Please read and answer each question carefully. When you are finished filling out the survey please return it directly to me. I will be glad to answer any questions you have at this time. Thank you for your cooperation and participation.

1. How many times have you visited the State of Hawaii? (circle one)

   1st visit 1-3 4-7 more than 7 seasonal resident

2. Indicate age group to which you belong:

   under 18 19-24 25-39 40-60 over 60

3. Up to this date, which of the Hawaiian Islands have you visited? (circle all that apply)

   Oahu Maui Hawaii(the Big Island) Kauai

   Other(please specify)_____

4. Indicate the average length of your visit or visits to the State of Hawaii:

   less than 7 days 7-10 days 10-14 days more than 14 days

-----Please turn over-----

Please circle the response or fill in the answer to the following questions that best describes how you feel. Meanings of abbreviations are as listed below.

SA=strongly agree A=agree UD=undecided D=disagree SD=strongly disagree

1. Hawaii's environment is the major tourist attraction.

   SA A UD D SD

2. The environmental effects of tourism in Hawaii are of no concern to the visiting tourists.

   SA A UD D SD

3. What qualities or aspects of Hawaii brought you to the state as a tourist? (please be specific)

   ---

4. Who do you believe should be the most concerned about the environmental impacts of tourism in Hawaii?

   A. state residents
   B. state and local governments
   C. tourists
   D. tourist industry
   E. everyone

5. Traffic congestion is increased by the tourist in Hawaii.

   SA A UD D SD

6. Crowding in Hawaii is a negative impact of tourism.

   SA A UD D SD

7. Tourism causes destruction of Hawaii's natural environment.

   SA A UD D SD

8. The depletion of Hawaii's wildlife and wildlife habitats is a result of tourism.

   SA A UD D SD

-----Please turn over----

SA=strongly agree A=agree UD=undecided D=disagree SD=strongly disagree

9. Increased litter in Hawaii is a result of tourism.

SA A UD D SD

10. Tourism contributes to increased pollution of Hawaii's freshwater supply.

SA A UD D SD

11. Tourism demands in Hawaii have resulted in better designed leisure and recreational facilities.

SA A UD D SD

12. Increased environmental protection would result in less development in Hawaii.

SA A UD D SD

13. Would you be as attracted to Hawaii, as you are currently, if its natural environment was as developed as Waikiki for tourist accommodations and facilities.

Yes_____ No_____

14. Tourism is more beneficial to Hawaii's economy than costly to Hawaii's environment.

SA A UD D SD

15. Saving money while vacationing in Hawaii is more important than protecting Hawaii's environment.

SA A UD D SD

16. How much more would you be willing to spend to vacation in Hawaii, if you knew that the higher expenses were a result of increased environmental protection?

A. less than $25
B. $25-$50
C. $50-$100
D. $100-$200
E. more than $200

Thank you!

APPENDIX C
INFORMED CONSENT AND INTRODUCTION

INFORMED CONSENT

This survey is part of a thesis research project on tourism and the environment being conducted by a graduate student at Kansas State University. The survey should take approximately 5 minutes to finish and is completely voluntary. You may refuse to participate or discontinue your participation at anytime during the survey without penalty. All answers are anonymous. They will be used for research and evaluation purposes only.

Completing this survey involves no foreseeable risks or benefits to you. The anticipated benefits to the research from this survey and its evaluation include: increased knowledge, education, and potential environmental applications.

Please read and answer each question carefully. When you are finished filling out the survey please return it directly to me. I will be glad to answer any questions you have at this time. Thank you for your cooperation and participation.

INTRODUCTION

Excuse me, mame/sir, may I have a moment of your time. I am a graduate student in landscape architecture from Kansas State University and I am here in Hawaii conducting research for my masters thesis. Could you assist me by filling out this questionnaire concerning tourism and the environment? It takes approximately 5 minutes to complete and I will be glad to answer any questions you may have. Thank you.

TOURISTS' PERCEPTIONS OF THE ENVIRONMENTAL IMPACTS OF TOURISM IN HAWAII

by

MELISSA A. WOODARD

B.S., Oklahoma State University, 1985

AN ABSTRACT OF A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

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Tourists' Perceptions of the Environmental Impacts of Tourism in Hawaii

Melissa A. Woodard
Department of Landscape Architecture
Kansas State University

April 8, 1989

ABSTRACT

Hawaii is a very special part of the United States which offers many outstanding and unique resources not found elsewhere. The particular qualities of the environment and the tourists it attracts make up the primary economic resource base. However, tourism has long been charged with contributing to detrimental impacts on the environment. Using a survey questionnaire, data was collected and used to evaluate tourist perceptions of tourism's environmental impacts. It was hypothesized, that based on tourist perceptions, tourists would be unwilling to incur higher vacation expenses as a tradeoff for increased environmental protection. Analysis of the results revealed that tourists were not only willing to incur higher vacation expenses, but also very aware and concerned about the environmental impacts of tourism. In addition, the tourists attributed better designed leisure and recreational facilities to the demands from tourism. However, they felt that increased environmental protection would result in less development of these facilities. The trends of the results indicated that as the tourists' length of stay and number of visits increased so did their perceptions that tourism causes increased environmental degradation.